

POSSIBLE MIMICRY BETWEEN CERTAIN CARABIDAE AND CHRYSOMELIDAE¹

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The Italian entomologist Silvestri (1904) was one of the first to recognize interrelationships between the Carabidae and Chrysomelidae. He recorded the development of larval stages of the ground beetle, *Lebia scapularis* Fourcroy, which require for food the pupal stage of the galerucine beetle, *Pyrrhalta luteola* (Muller). Balduf (1935) credited Rosenberg for noting that the larvae of *Lebia cruxminor* L. feed upon those of another galerucine, *Adimonia tanacetii* L. Van Emden (1942) recorded similar associations but asserted that ". . . it will, indeed, be impossible to identify full-grown larvae of species of *Lebia* (*L. scapularis* Fourcroy) which are semiparasitic on beetle pupae."

To the best of my knowledge, the striking similarity between adult beetles of these two families has not been recorded. Nevertheless, resemblances have been pronounced enough that specimens of both families, from the same locality and date of collection, have been confused in museum collections. Do these strong superficial likenesses represent cases of aggressive mimicry on the part of the predator carabids, or are these cases of either Batesian or Mullerian mimicry? Further study is needed to determine which organisms serve as models, as mimics, and as the deceived receptors of these mimetic signals.

Balsbaugh (1966) recorded having collected a single specimen of the ground beetle, *Lebia furcata* LeC., along with a large series of the alticid, *Disonycha alternata* LeC., by beating *Salix* sp. (willow), three miles east of the "Y," Macon county, Alabama. The similarity of body coloration and elytral vittae between these two species is most remarkable (fig. 1). *Disonycha alternata* LeC. has also been associated with *Lebia depicta* Horn by V. M. Kirk, who indicated on his specimen labels that the latter species was feeding on the larvae of the former. Kirk collected these beetles at Riverhead, Long Island, New York, July 1, 1948, on "beach plum."

A third carabid-chrysomelid association of vittate species involves the ground beetle, *Lebia depicta* Horn and the alticid, *Disonycha procera* Casey (fig. 2). These beetles were collected by R. L. Post in Bottineau County, North Dakota, August 28, 1961.

Associations of immaculate species were noted July 12, 1966, when two specimens of the ground beetle, *Lebia pumila* Dej. and a single specimen of *L. viridis* Say were taken along with twenty-three specimens of the cryptocephalid, *Lexiphanes saponatus* (Fab.). This series was collected by sweeping *Apocynum cannabinum* L. (dogbane), seven miles southeast of Parker, Turner County, South Dakota. The closeness of these resemblances is not as pronounced as in the vittate species, and the similarity of *Lebia pumila* Dej. and *Lexiphanes saponatus* (Fab.) (fig. 3) is greater than that of the latter with *L. viridis* Say.

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Suspected associations, for which substantiated field observations are yet lacking, possibly occur between *Lebia viridis* Say and various *Altica* spp. (fig. 4).

Lebia analis Dej. and the alticid, *Capraita obsidiana* (Fab.), are also possibly interacting species. They occur sympatrically in Alabama and are nearly as remarkable in elytral patterns and colors as are the vittate species. Both of these beetles have varying elytral patterns of fuscous and black (fig. 5).

It is to be hoped that other coleopterists will be encouraged to note similar ecological associations when collecting, or otherwise studying in the field. Often clues to such relationships can also be discovered when working in the laboratory with pinned specimens.

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FIGURES 1a, b—5a, b, Mimetic associations of Chrysomelidae (a's) and Carabidae (b's). 1a—*Disonycha alternata* LeC., 1b—*Lebia furcata* LeC. 2a—*Disonycha procera* Csy., 2b—*Lebia depicta* Horn. 3a—*Lexiphanes saponatus* (Fab.), 3b—*Lebia pumila* Dej. 4a—*Altica foliaceae* LeC., 4b—*Lebia viridis* Say. 5a—*Capraita obsidiana* (Fab.), 5b—*Lebia analis* Dej.

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